Biorheology

Contents and Author Index
VOLUME 31, 1994

PERGAMON

BIORHEOLOGY

Founded by A.L. Copley and G.W. Scott Blair

Editors-in-Chief

HARRY GOLDSMITH, McGill University Medical Clinic, The Montréal General Hospital, 1650 Cedar Avenue, Montréal, Québec, Canada H3G 1A4, FAX: (514) 937-6961
PEDRO VERDUGO, Center for Bioengineering WD 12, University of Washington, Seattle, WA 98195, U.S.A., FAX: (206) 685-3300

Editorial Associate

T. GRISHAM, TEL: (206) 543-7626
FAX: (206) 685-7956

Board of Editors

J.R. CASLEY-SMITH, Adelaide, Australia
E.A. EVANS, Vancouver, Canada
P. GAEHTGENS, Berlin, Germany
H.L. GOLDSMITH, Montreal, Canada
R. HARD, Buffalo, U.S.A.
J.C. HEALY, Saint-Etienne, France
D. LERCHE, Berlin, Germany
D. LIEPSCH, München, Germany
A. MAROUDAS, Haifa, Israel
H. NIIMI, Osaka, Japan
K. NISHINARI, Osaka, Japan
N. OHSHIMA, Ibaraki, Japan
V.A. PARSEGIAN, Bethesda, U.S.A.
Z. PRIEL, Beer-Scheva, Israel
E. PUCHELLE, Reims, France
D. QUEMADA, Paris, France
R. RENEMAN, Maastricht, The Netherlands
R. RIHA, Prague, Czech Republic
G.W. SCHMID-SCHÖNBEIN, La Jolla, U.S.A.
J.F. STOLTZ, Vandoeuvre-les-Nancy, France
G.B. THURSTON, Austin, U.S.A.
C. VINEY, Seattle, U.S.A.
L. WEISS, Buffalo, U.S.A.
F.Y. ZHUANG, Beijing, China

A list of the complete addresses of Editors and their fields of interest is included in this issue

Honorary Editorial Advisory Board

D.E. BROOKS, Vancouver, Canada
G. BUGLIARELLO, New York, U.S.A.
S. CHIEN, New York, U.S.A.
D. DANON, Rehovot, Israel
F.R. EIRICH, New York, U.S.A.
E. FUKADA, Tsukuba, Japan
Y.C.B. FUNG, La Jolla, U.S.A.
J.F. GROSS, Tucson, U.S.A.
N. KAMIYA, Okazaki, Japan
T. LAURENT, Uppsala, Sweden
M. LITT, Philadelphia, U.S.A.
G.E. PALADE, U.S.A.
G.V.F. SEAMAN, San Diego, U.S.A.
S. SENO, Okayama, Japan
R. SKALAK, La Jolla, U.S.A.
V.I. VOROB'EV, St. Petersburg, Russia
S. WITTE, Karlsruhe, Germany

BIORHEOLOGY Executive Editorial Office: Center for Bioengineering WD 12, University of Washington, Seattle, WA 98195, U.S.A. Fax: (206) 685-3300

Production Editor: Douglas Cherno, E-mail: D.CHERNO@ELSEVIER.COM.

Publishing, Subscription and Advertising Offices: Elsevier Science Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A., E-mail Address: ESUK.USA@ELSEVIER.COM; or Elsevier Science Ltd, The Boulevard, Langford Lane, Kidlington, Oxford, OX5 1GB, England.

PUBLISHED BIMONTHLY. *Annual Institutional Subscription Rate* (1995): North, Central and South America, U.S. $544.00, Rest of World £365.00. Sterling prices exclude VAT. Non-Vat registered customers in the European Community will be charged the appropriate VAT in addition to the price listed. Prices include postage and insurance and are subject to change without notice.

Pergamon

Biorheology, Vol. 31, No. 6 pp. III–VII, 1994
Copyright © 1994 Elsevier Science Ltd
Printed in the USA. All rights reserved
0006-355X/94 $6.00 + .00

BIORHEOLOGY

CONTENTS OF VOLUME 31, 1994

NUMBER 1

		Papers
M. Sugihara-Seki	1	The motion of two cylinders in contact in channel flow
M. Agarwal, M. King and J. B. Shukla	11	Mucous gel transport in a simulated cough machine: Effects of longitudinal grooves representing spacings between arrays of cilia
S. Hsu, A. M. Jamieson and J. Blackwell	21	Viscoelastic studies of extracellular matrix interactions in a model native collagen gel system
R. Reihsner and E. J. Menzel	37	Mechanical changes in rat tail tendons induced by dibasic amino acids as a function of age
J. Ando, A. Ohtsuka, Y. Katayama, R. Korenaga, C. Ishikawa and A. Kamiya	57	Intracellular calcium response to directly applied mechanical shearing force in cultured vascular endothelial cells
K. M. Dao, E. A. O'Rear, A. E. Johnson and S. E. Peitersen	69	Sensitivity of the erythrocyte membrane bilayer to subhemolytic mechanical trauma as detected by fluorescence anisotropy
C.-D. Kuo, J.-J. Bai, and S. Chien	77	A fractal model for erythrocyte sedimentation
W. S. Kaniewski, T. S. Hakim and J. C. Freedman	91	Cellular deformability of normoxic and hypoxic mammalian red blood cells
D. Chen and K. Kaul	103	Rheologic and hemodynamic characteristics of red cells of mouse, rat and human
R. E. N. Shehada, R. S. C. Cobbold and L. Y.-L. Mo	115	Aggregation effects in whole blood: Influence of time and shear rate measured using ultrasound
	137	*Announcements*
	141	Contents of *Clinical Hemorheology*, Volume 13, Number 4

NUMBER 2

H. L. Goldsmith	iii	*Editorial*
		Papers
M. Sato and N. Ohshima	143	Flow-induced changes in shape and cytoskeletal structure of vascular endothelial cells
M. Okano and Y. Yoshida	155	Junction complexes of endothelial cells in atherosclerosis-prone and atherosclerosis-resistant regions on flow dividers of brachiocephalic bifurcations in the rabbit aorta
J. L. Williams, J. P. Iannotti, A. Ham, J. Bleuit and J. H. Chen	163	Effects of fluid shear stress on bone cells
Y. Masuda, S. Kamisaka, R. Yamamoto, T. Hoson and K. Nishinari	171	Changes in the rheological properties of the cell wall of plant seedlings under simulated microgravity conditions
G. B. Thurston	179	Non-Newtonian viscosity of human blood: Flow-induced changes in microstructure
L. H. Deng, J. C. Barbenel, and G. D. O. Lowe	193	Influence of hematocrit on erythrocyte aggregation kinetics for suspensions of red blood cells in autologous plasma
E. Friederichs and H. J. Meiselman	207	Effects of calcium permeabilization on RBC rheologic behavior
	217	*Erratum*
	219	Contents of *Clinical Hemorheology*, Volume 13, Number 5

NUMBER 3

		Papers
V. I. Vorob'ev, E. V. Karpova and T. N. Osipova	221	Hydrodynamic properties of nucleosomal fibers and chromatin higher-order structure
Y. Kobayashi, A. Okamoto and K. Nishinari	235	Viscoelasticity of hyaluronic acid with different molecular weights
D. D. Deligianni, Y. F. Missirlis and V. Kafka	245	Determination of material constants and hydraulic strengthening of trabecular bone through an orthotropic structural model
J. M. van Gelder, C. H. Nair and D. P. Dhall	259	The significance of red cell surface area to the permeability of fibrin network
E. Muralidharan, N. Tateishi and N. Maeda	277	A new laser photometric technique for the measurement of erythrocyte aggregation kinetics

M. Long, H. B. Wang, Z. Z. Wu, Y. P. Wu and A. Sakanishi — 287 — Effect of electric field on erythrocyte sedimentation rate. IV. Volume fraction dependence of human red cells in plasma

M. V. Kameneva, J. F. Antaki, M. J. Watach, H. S. Borovetz and R. L. Kormos — 297 — Heparin effect on red blood cell aggregation

305 *Announcement*

307 Contents of *Clinical Hemorheology*, Volume 13, Number 6

NUMBER 4

Contents

H. L. Goldsmith — iii — *Editorial*

Papers

R. Miftakhov and D. Wingate — 309 — Numerical simulation of the peristaltic reflex of the small bowel

B. Lee, M. Litt and G. Buchsbaum — 327 — Rheology of the vitreous body: Part 2. Viscoelasticity of bovine and porcine vitreous

B. Lee, M. Litt and G. Buchsbaum — 339 — Rheology of the vitreous body: Part 3. Concentration of electrolytes, collagen and hyaluronic acid

L. A. Sung and E. A. Kabat — 353 — Agglutination-induced erythrocyte deformation by two blood group A-specific lectins: Studies by light and electron microscopy

T. Matsumoto, T. Naiki and K. Hayashi — 365 — Flow visualization analysis of pulsatile flow in elastic straight tubes

T. Dobashi, A. Idonuma, Y. Toyama and A. Sakanishi — 383 — Effect of concentration on enhanced sedimentation rate of erythrocytes in an inclined vessel

N. Maeda, T. Nakajima, Y. Izumida, Y. Suzuki, N. Tateishi and A. Seiyama — 395 — Decreased deformability of red cells in refractory anemia and the abnormality of the membrane skeleton

M. Gudmundsson, A. Odén and A. Bjelle — 407 — On whole blood viscosity measurements in healthy individuals and in rheumatoid arthritis patients

417 *Abstracts*

Third International Symposium on Biofluid Mechanics, Munich, Germany July 16–19, 1994

505 *Erratum*

507 *Announcement*

509 Contents of *Clinical Hemorheology*, Volume 14, Number 1

NUMBER 5

Papers

R. P. Tomkiewicz, A. A. Biviji and M. King — 511 — Effects of oscillating air flow on the rheological properties and clearability of mucous gel simulants

S. Hashimoto — 521 — Clot growth under periodically fluctuating shear rate

A. Delfino, J. E. Moore, Jr. and J.-J. Meister — 533 — Lateral deformation and movement effects on flow through distensible tube models of blood vessels

S. K. Wang and N. H. C. Hwang — 549 — On the transport of a suspended particle in flow through the entrance region of a tube

P. D. Ballyk, D. A. Steinman and C. R. Ethier — 565 — Simulation of non-Newtonian blood flow in an end-to-side anastomosis

E. Muralidharan — 587 — Simultaneous determination of hematocrit, aggregate size and sedimentation velocity by He-Ne laser scattering

601 — Contents of *Clinical Hemorheology*, Volume 14, Number 2

NUMBER 6

iii — *Editor's Note*

Papers

R. A. Adams, S.-A. Evans and J. G. Jones — 603 — Characterization of leukocytes by filtration of diluted blood

M. Braide, P. R. Ebrahimzadeh, K.-G. Strid and L. M. Bjursten — 617 — Migration of human granulocytes in filters: Effects of gravity and movable gradients of f-MLP

W. A. Van der Reijden, E. C. I. Veerman and A. V. Nieuw Amerongen — 631 — Rheological properties of commercially available polysaccharides with potential use in saliva substitutes

Brief Communication

M. Paulitschke, A. Preece and G.B. Nash — 643 — Effect of neuraminidase on rigidity of the red cell membrane

Abstracts

651 — *Seventeenth Annual Meeting of the Japanese Society of Biorheology Tokyo, Japan, 17–18 June, 1994*

671 — Contents of *Clinical Hemorheology*, Volume 14, Number 3

I — *Contents Index, Volume 31, 1994*

VII — *Author Index, Volume 31, 1994*

BIORHEOLOGY

AUTHOR INDEX, VOLUME 31, 1994

Adams, R. A., 603
Agarwal, M., 11
Ando, J., 57
Antaki, J. F., 297
Bai, J.-J., 77
Ballyk, P. D., 565
Barbenel, J. C., 193
Biviji, A., 511
Bjelle, A., 407
Bjursten, L. M., 617
Blackwell, J., 21
Bleuit, J., 163
Borovetz, H. S., 297
Braide, M., 617
Buchsbaum, G., 327, 339
Chen, D., 103
Chen, J. H., 163
Chien, S., 77
Cobbold, R. S. C., 115
Dao, K. M., 69
Delfino, A., 533
Deligianni, D. D., 245
Deng, L. H., 193
Dhall, D. P., 259
Dobashi, T., 383
Ebrahimzadeh, P. R., 617
Ethier, C. R., 565
Evans, S.-A., 603
Freedman, J. C., 91
Friederichs, E., 207
Gudmundsson, M., 407
Hakim, T. S., 91
Ham, A., 163
Hashimoto, S., 521
Hayashi, K., 365
Hoson, T., 171
Hsu, S., 21
Hwang, N. H. C., 549
Iannotti, J. P., 163
Idonuma, A., 383
Ishikawa, C., 57
Izumida, Y., 395
Jamieson, A. M., 21
Johnson, A. E., 69
Jones, J. G., 603
Kabat, E. A., 353
Kafka, V., 245
Kameneva, M. V., 297
Kamisaka, S., 171
Kamiya, A., 57
Kaniewski, W. S., 91
Karpova, E. V., 221
Katayama, Y., 57
Kaul, D. K., 103
King, M., 11, 511
Kobayashi, Y., 235
Korenaga, R., 57
Kormos, R. L., 297
Kuo, C.-D., 77
Lee, B., 327, 339
Litt, M., 327, 339
Long, M., 287
Lowe, G. D. O., 193
Maeda, N., 277, 395
Masuda, Y., 171
Matsumoto, T., 365
Meiselman, H. J., 207
Meister, J. J., 533
Menzel, E. J., 37
Miftakhov, R., 309
Missirlis, Y. F., 245
Mo, L. Y.-L., 115
Moore Jr., J. E., 533
Muralidharan, E., 277, 587
Naiki, T., 365
Nair, C. H., 259
Nakajima, T., 395
Nash, G. B., 643
Nieuw Amerongen, A. V., 631
Nishinari, K., 171, 235
O'Rear, E. A., 69
Odén, A., 407
Ohshima, N., 143
Ohtsuka, A., 57
Okamoto, A., 235
Okano, M., 155
Osipova, T. N., 221
Paulitschke, M., 643
Peitersen, S. E., 69
Preece, A., 643
Reihsner, R., 37
Sakanishi, A., 287, 383
Sato, M., 143
Seiyama, A., 395
Shehada, R. E. N., 115
Shukla, J. B., 11
Steinman, D. A., 565
Strid, K.-G., 617
Sugihara-Seki, M., 1
Sung, L. A., 353
Suzuki, Y., 395
Tateishi, N., 277, 395
Thurston, G. B., 179
Tomkiewicz, R. P., 511
Toyama, Y., 383
Van der Reijden, W. A., 631
van Gelder, J. M., 259
Veerman, E. C. I., 631
Vorob'ev, V. I., 221
Wang, H. B., 287
Wang, S. K., 549
Watach, M. J., 297
Williamns, J. L., 163
Wingate, D., 309
Wu, Y. P., 287
Wu, Z. Z., 287
Yamamoto, R., 171
Yoshida, Y., 155